

US Steel Gary Works
Gary, Indiana
Permit Reviewer: Gail McGarrity

T089-7663-00121

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE DATA SECTION

PART 70 OPERATING PERMIT
QUARTERLY DEVIATION AND COMPLIANCE MONITORING REPORT

Source Name: U.S. Steel – Gary Works
Source Address: One North Broadway, Gary, Indiana 46402
Mailing Address: One North Broadway, Gary, Indiana 46402
Part 70 Permit No.: T089-7663-00121

Months: January 1 to March 31 Year: 2012 Page 1 of 1

This report shall be submitted quarterly based on a calendar year. Any deviation from the requirements, the date(s) of each deviation, the probable cause of the deviation, and the response steps taken must be reported. A deviation required to be reported pursuant to an applicable requirement that exists independent of the permit, shall be reported according to the schedule stated in the applicable requirement and does not need to be included in this report. Additional pages may be attached if necessary. If no deviations occurred, please specify in the box marked "No deviations occurred this reporting period".

☐ NO DEVIATIONS OCCURRED THIS REPORTING PERIOD.

☒ THE FOLLOWING DEVIATIONS OCCURRED THIS REPORTING PERIOD.

Permit Requirement (specify permit condition #): D.9.4(c)

Date of Deviation: 03/19/2012

Duration of Deviation: NA

Number of Deviations: 2

Probable Cause of Deviation: Ladle was late to the car. This was due to #5 ladle crane operator leaving his crane while the ladle for W furnace was being processed.

Response Steps Taken: Contact craneman to ensure that they do not block an in-process ladle when craneman must deboard crane for any reason.

Permit Requirement (specify permit condition #): D.9.4(c)

Date of Deviation: 03/23/12

Duration of Deviation: NA

Number of Deviations: 1

Probable Cause of Deviation: Flameup apparently due to charging wet scrap into a cold vessel.

Response Steps Taken: Ensure BOP emergency scrap box is kept dry with either a tarp, moving the box inside, or putting it under a shelter.

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Permit Requirement (specify permit condition #) C.1(b)

Date of Deviation: 01/20/12

Duration of Deviation: Not applicable

Number of Deviations: 1

Probable Cause of Deviation: #4 condensing Turbine Boosters tripped and caused suction to be lost to the batteries, which resulted in the gas being ignited through the emergency flare system.

Response Steps Taken: Pressure regulator adjustments on oil recirculation system; Operator Log Revision; Flare Stack Evaluation; Complete steam balance for Coke Plant, Bryerton Steam delivery evaluation; Review oil system to fall over; Contact Elliot technician; Take vibration readings on #1 and #4 Booster.

Permit Requirement (specify permit condition #) D.2.27

Date of Deviation: 01/27/12

Duration of Deviation: Not applicable

Number of Deviations: 1

Probable Cause of Deviation: Salt was used for de-icing the roads and walkways from the snowfall, which was stockpiled near the track that connects to the coke car quench tracks for 5 and 7 Coke Batteries.

Response Steps Taken: Contact personnel to stockpile snow in the areas such that run-off will not impact coke battery quench tracks or drainage systems; Issue contact to Coke Plant employees not to use salt to deice Hot Car tracks and railroad tracks in close proximity to the Quench; Contaminated sump water was pumped to the coke plant process water system and replaced with clean make-up water.

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Permit Requirement (specify permit condition #) C.1(b)

Date of Deviation: 01/29/12

Duration of Deviation: Not applicable

Number of Deviations: 1

Probable Cause of Deviation: Leakages into the end flues and directly off of stack when the battery went to neutral. There was not enough air to combust with the Coke Oven Gas.

Response Steps Taken: Determine how to calibrate the main supply pressure transmitter without having to put the battery in neutral; revise work order instructions for the main supply pressure transmitter and both underfire pressure transmitters and install a warning light device to alert of opacity issue.

Permit Requirement (specify permit condition #) D.2.4(e)(1), D.2.5(c)

Date of Deviation: 03/24/12

Duration of Deviation: Not applicable

Number of Deviations: 1

Probable Cause of Deviation: 6 leaking offtakes of 100 observed

Response Steps Taken: Break down old sealing material off the bases and reseal.

Permit Requirement (specify permit condition #) C.1(a) and D.2.5(l) (See Attachment)

Date of Deviation:

Duration of Deviation: Not applicable

Number of Deviations:

Probable Cause of Deviation:

Response Steps Taken:

I certify that, based on information and belief formed after reasonable inquiry, the statements and information in this document is true, accurate and complete.

Form Completed By: James R. Penman

Title/Position: Division Manager, Coke Operations

Date: April 16, 2012

Phone: 219.888.4028

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Permit Requirement (specify permit condition #): C.1(a)

Date of Deviation: 01/06/2012

Duration of Deviation: N/A

Number of Deviations: 1

Probable Cause of Deviation: The cast at #1 cast hole was initiated with the damper in the closed position, causing the release of emissions, which resulted in a PM 10 exceedence.

Response Steps Taken: Re-contact all BF operating employees on casting procedure; Install damper position indication lights on cast floor; Open damper at #1 cast hole and continue the cast; Investigate adding permissive to existing MMI to ensure damper is open before cast begins.

I certify that, based on information and belief formed after reasonable inquiry, the statements and information in this document is true, accurate and complete.

Form Completed By:

Jason W. Entwistle

Title/Position:

Division Manager, Iron Producing

Date:

April 12, 2012

Phone:

219.888.4688

United States Steel Corporation
GW - Primary - Coke Plant
EIRS Incident Screen Print

GW-Primary00134

Incident

Short Description:	VERIF - Booster Trip		
Type:	Air Requirement	Status:	Open
Reported By:	Mardanna Soto	Phone:	2339
Date Received:	1/21/2012 9:17 AM	USS / Transtar Employee?	Yes
Entered By:	Mardanna Soto		
Date Occurred:	1/20/2012 5:12 PM	End Date:	1/20/2012 5:39 PM
		Offsite?	No
Incident State:	Ended		
Process Unit:	No. 7 Battery	Location:	No 7 Battery Underfire Stack

Description: The boosters in the Chemicals area of the Coke Plant provide evacuation of the raw coke oven gas evolved during the coking process. At 5:10 pm on Friday, January 20, 2012, #4 condensing Turbine Boosters tripped and caused suction to be lost to the batteries, which resulted in the gas being ignited through the emergency flare system. At the time of the incident, the booster's steam driven oil pump was operating with the electric pump as an automatic backup. The operator line data sheets being completed provided incorrect operating limits for the governor and bearing oil pressure for the operation of #4 Booster. The operator line data sheets indicated an operating range of 6-12 psig. for the bearing oil while the actual operating range was 24-18 with an emergency trip point of 10 psig. During the time when excess raw coke oven gas was being flared, the back pressure in the battery gas system resulted in excessive leakage from the oven chambers into the combustion flues which was directed to the stack causing the excessive emissions resulting in the deviation. Coke Plant personnel started #1 topping turbine booster, and normal operations returned at 5:55 pm.

Environmental Contact:	Mardanna Soto	Method of Contact:	Direct Contact
Date Contacted:	1/20/2012 6:00 AM	CPAR Required?	No
		CPAR #:	

Additional Information

Media:	Air	Severity:	High
Has the initial report been confirmed?	Yes	Confirmation Method:	Monitoring
Were changes to the initial report required?	No	Outside Impact?	No
Reportable?	Yes - Agency Reportable	Deviation (Y/N):	Yes

Permit/Citation Ref/Plan Associated:

Additional Comments:

Root Cause Determination: The Bearing oil pressure dropped below 10psig due to a drop in the 150pound steam system pressure. The system is designed to fail over from the steam pump to an electric oil pump if steam pressure is lost. The failover logic is dependent on the proper setting of the governor oil pressure which was not correctly adjusted, (60 psig is the operating set point for the governor oil pressure), therefore allowed the bearing oil pressure to drop below the set point and shut down the booster. The governor oil pressure did not reach a point where the electric pump activated.

The #4 booster does not produce 150 lb steam like the other boosters. As a result, 150 lb steam pressure is lower when this booster is on line by itself due to the limitations of the distribution system to provide adequate steam to support the normal 150# load.

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Associated with another incident? No

Associated Incident
Number?

Health and Safety? No

Incident Classification:

Category:

Initiating Event:

Include in Rates and Counts? No

Incident Detail

Incident Sub-Type:

Self Observed Event

Type of air requirement: Title V Permit

Type of

COMS

COMS or # CEMS:

deviation/exceedance/regulation:

Cause:

The Bearing oil pressure dropped below 10psig due to a drop in the 150pound steam system pressure. The system is designed to fail over from the steam pump to an electric oil pump if steam pressure is lost. The fallover logic is dependent on the governor oil pressure dropping below 60 psi. While the bearing oil pressure dropped below the setpoint to shut down the booster, the governor oil pressure did not reach a point where the electric pump would be activated.

The #4 booster does not produce 150 lb steam like the other boosters. As a result, 150 lb steam pressure is lower when this booster is on line by itself.

Control & Counter Measure: n/a

Materials

No Data

Regulatory Notifications

No Data

Incident Investigation List

Investigation Number	Start Date	End Date
GW-Primary00134	1/20/2012	1/23/2012

Incident Investigation Detail

Incident Investigation: GW-Primary00134

Start Date: 1/20/2012

End Date: 1/23/2012

Potential Severity: N/A

Potential Recurrence: N/A

Incident Cause:

Preventative Action	Deadline	By Whom	Completion Date

Team Member	Email

Corrective Actions List

Corrective Action	Status

United States Steel Corporation
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EIRS Incident Screen Print

Corrective Action	Status
C - Contact Elliot technician	Closed
C - Pressure regulator adjustments on oil recirculation system	Closed
C - Switch out oil filters - Not related to root cause.	Closed
P - Take vibration readings on #1 and #4 Booster	Closed
C - Operator Log Revision	Completed
P - Bryerton Steam delivery evaluation	Closed
P - Complete steam balance for Coke Plant	Completed
P - Flare Stack Evaluation	Closed
P - Review oil system to fail over	Closed

Corrective Actions Detail**Corrective Action: C - Contact Elliot technician**

Author: ELY, MIKE
 Author Date: 1/20/2012
 CAI #:
 Notes: C Contact Elliot technician to help determine root cause failure.
 Manager: 12601
 Status: Closed
 Priority:
 Origin Cause:
 Proposed Corrective Action: Contact Elliot technician to help determine root cause failure.
 Proposed Completion Date: 1/31/2012
 Revised Completion Date:
 Site Response:
 Assigned To: ELY , MIKE
 Externally Controlled:
 Review on Completion:
 Actual Corrective Action: Elliot technician examined and gave written report to Ely.
 Actual Completion Date: Jan 26, 2012 12:00:00 AM
 Verified By:
 Date Verified:

Corrective Action: C - Pressure regulator adjustments on oil recirculation system

Author: BISH, KEVIN
 Author Date: 1/20/2012
 CAI #:
 Notes: The governor oil pressure switch that was in use on the day of the incident was not adjustable to the new desired set point of 75psi. Therefore a new pressure switch was installed that allows for the pressure to be controlled at the new set point.
 Manager: 11588
 Status: Closed
 Priority:
 Origin Cause:
 Proposed Corrective Action: Adjust governor oil pressure switch to activate automatically in order to start the back-up oil pump on #1 Booster to ensure bearing oil pressure is maintained above machine trip point.
 Proposed Completion Date: 2/11/2012
 Revised Completion Date:
 Site Response:
 Assigned To: BISH , KEVIN
 Externally Controlled:

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Review on Completion:
Actual Corrective Action:
Actual Completion Date: Feb 9, 2012 12:00:00 AM
Verified By:
Date Verified:

Corrective Action: C - Switch out oil filters - Not related to root cause.

Author: ELY, MIKE
Author Date: 1/21/2012
CAI #:
Notes:
Manager: 12601
Status: Closed
Priority:
Origin Cause:
Proposed Corrective Action: Switch out oil filters.
Proposed Completion Date: 1/21/2012
Revised Completion Date:
Site Response:
Assigned To: ELY, MIKE
Externally Controlled:
Review on Completion:
Actual Corrective Action: Switched out oil filters.
Actual Completion Date: Jan 21, 2012 12:00:00 AM
Verified By:
Date Verified:

Corrective Action: P - Take vibration readings on #1 and #4 Booster

Author: ELY, MIKE
Author Date: 1/21/2012
CAI #:
Notes: See attached file for data.
Manager: 12601
Status: Closed
Priority:
Origin Cause:
Proposed Corrective Action: Take vibration readings on #1 and #4 booster and compare to the last readings.
Proposed Completion Date: 1/21/2012
Revised Completion Date:
Site Response: See attached two files for vibration data.
Assigned To:
Externally Controlled:
Review on Completion:
Actual Corrective Action: Take vibration readings on #1 and #4 booster and compare to the last readings.
Actual Completion Date: Jan 21, 2012 12:00:00 AM
Verified By:
Date Verified:

Corrective Action: C - Operator Log Revision

Author: ELY, MIKE
Author Date: 1/27/2012
CAI #:
Notes:
Manager:
Status: Completed
Priority:
Origin Cause:
Proposed Corrective Action: Make revisions to the operator logs to insure that the proper operating limits,(different for each booster), are being considered based on the booster that is in operation at the time

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EIRS Incident Screen Print

as well as identifying the automatic trip settings for the parameters involved. Set point numbers will be included in the incident report for future reference.

Proposed Completion Date: 2/29/2012
 Revised Completion Date: 2/27/2012
 Site Response:
 Assigned To: ELY , MIKE
 Externally Controlled:
 Review on Completion:
 Actual Corrective Action:
 Actual Completion Date: Feb 27, 2012 12:00:00 AM
 Verified By:
 Date Verified:

Corrective Action: P - Bryerton Steam delivery evaluation

Author: MCGUIRE, KEVIN
 Author Date: 1/27/2012
 CAI #:
 Notes:
 Manager: 12053
 Status: Closed
 Priority:
 Origin Cause:

Proposed Corrective Action:

Contact a certified Engineering Company to assess and provide recommended Boiler house steam piping configuration changes that will facilitate additional 150 lb steam to be supplied to the coke plant from the boiler house to satisfy the maximum demand requirements recognizing all possible operating boiler configurations.

Proposed Completion Date: 4/30/2012
 Revised Completion Date:
 Site Response: Completed per Kevin McGuire. Will attach documentation when forwarded by Kevin.
 Assigned To:
 Externally Controlled:
 Review on Completion:
 Actual Corrective Action:
 Actual Completion Date: Apr 20, 2012 12:00:00 AM
 Verified By:
 Date Verified:

Corrective Action: P - Complete steam balance for Coke Plant

Author: ELY, MIKE
 Author Date: 1/27/2012
 CAI #:
 Notes:
 Manager: 12601
 Status: Completed
 Priority:
 Origin Cause:

Proposed Corrective Action:

Evaluate the steam requirements for the Coke Plant with different operational scenarios. These scenarios are to include the operation of a single topping turbine, a single condensing turbine, a topping turbine and a condensing turbine in parallel and the loss of all electricity in the Coke plant.

Proposed Completion Date: 2/29/2012
 Revised Completion Date: 3/9/2012
 Site Response: Steam balance was completed and plan to review on 3-9-2012.
 Assigned To: ELY , MIKE
 Externally Controlled:
 Review on Completion:
 Actual Corrective Action:
 Actual Completion Date: Mar 2, 2012 12:00:00 AM

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Verified By:
Date Verified:

Corrective Action: P - Flare Stack Evaluation

Author: BISH, KEVIN
Author Date: 1/27/2012
CAI #:
Notes:
Manager: 11588
Status: Closed
Priority:
Origin Cause:

Proposed Corrective Action: Evaluate the current logic for opening and closing the flare stacks on the batteries to determine whether improvements can be made to minimize stack violations in the event of a loss of suction
Proposed Completion Date: 2/29/2012
Revised Completion Date: 3/9/2012
Site Response: Jamie Penman directed that no changes be made to flare stack control in an effort to avoid unknown related issues.
Assigned To: BISH, KEVIN

Externally Controlled:
Review on Completion:
Actual Corrective Action:
Actual Completion Date: Mar 15, 2012 12:00:00 AM
Verified By:
Date Verified:

Corrective Action: P - Review oil system to fail over

Author: ELY, MIKE
Author Date: 1/27/2012
CAI #:
Notes:
Manager: 12601
Status: Closed
Priority:
Origin Cause:

Proposed Corrective Action: Review the logic for causing the oil system to fail over to consider governor oil pressure, bearing oil pressure, and possibly 150 lb steam pressure.
Proposed Completion Date: 2/3/2012
Revised Completion Date:
Site Response:
Assigned To: GORMLEY, STEPHEN
Externally Controlled:
Review on Completion:
Actual Corrective Action:
Actual Completion Date: Feb 3, 2012 12:00:00 AM
Verified By:
Date Verified:

Root Cause

No Data

Reviewers/Approvers

No Data

Attachments

United States Steel Corporation
GW - Primary - Coke Plant
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No Data

Witness Statements

No Data

Tasks

No Data

Lessons Learned

No Data

